

CLAIMS:

1. A mask for transferring a lithographic pattern onto a substrate by use of a lithographic exposure apparatus, said mask comprising:
 - at least one non-critical feature, formed utilizing one of a low-transmission phase-shift mask and a non-phase-shifting mask, and
- 5 at least one critical feature, formed utilizing a high-transmission phase-shift mask.
2. A mask according to claim 1, wherein said mask is formed on a single supporting plate.
3. A mask according to claim 1, wherein said low-transmission phase-shift mask comprises a 5-8% transmission attenuated phase-shift mask.
- 10 4. A mask according to claim 2, wherein said low-transmission phase-shift mask comprises a 5-8% transmission attenuated phase-shift mask.
5. A mask according to claim 1, wherein said low-transmission phase-shift mask comprises a non-phase-shifting chrome mask.
6. A mask according to claim 2, wherein said low-transmission phase-shift mask
- 15 comprises a non-phase-shifting chrome mask.
7. A mask according to claim 1, wherein said high-transmission phase-shift mask comprises at least a 10% transmission attenuated phase-shift mask.
8. A mask according to claim 2, wherein said high-transmission phase-shift mask comprises at least a 10% transmission attenuated phase-shift mask.
- 20 9. A mask according to claim 3, wherein said high-transmission phase-shift mask comprises at least a 10% transmission attenuated phase-shift mask.
10. A mask according to claim 5, wherein said high-transmission phase-shift mask comprises at least a 10% transmission attenuated phase-shift mask.
11. A mask according to claim 1, wherein said high-transmission phase-shift mask
- 25 comprises at least a 10% transmission chromeless phase-shift mask.
12. A mask according to claim 2, wherein said high-transmission phase-shift mask comprises at least a 10% transmission chromeless phase-shift mask.

13. A mask according to claim 3, wherein said high-transmission phase-shift mask comprises at least a 10% transmission chromeless phase-shift mask.
14. A mask according to claim 5, wherein said high-transmission phase-shift mask comprises at least a 10% transmission chromeless phase-shift mask.
- 5 15. A mask according to claim 1, wherein said mask comprises a plurality of said non-critical features and a plurality of said critical features.
16. A mask according to claim 3, wherein said mask comprises a plurality of said non-critical features and a plurality of said critical features.
17. A mask according to claim 5, wherein said mask comprises a plurality of said non-critical features and a plurality of said critical features.
- 10 18. A mask according to claim 7, wherein said mask comprises a plurality of said non-critical features and a plurality of said critical features.
19. A method of forming a mask for transferring a lithographic pattern onto a substrate by use of a lithographic exposure apparatus, said method comprising the steps of:
 - 15 forming at least one non-critical feature on said mask, said at least one non-critical feature being formed utilizing one of a low-transmission phase-shift mask and a non-phase-shifting mask, and
 - forming at least one critical feature on said mask, said at least one critical feature being formed utilizing a high-transmission phase-shift mask.
- 20 20. A method for transferring a lithographic pattern from a photolithography mask onto a substrate by use of a lithographic exposure apparatus, said method comprising the steps of:
 - forming said photolithography mask, said photolithography mask comprising at least one non-critical feature, said at least one non-critical feature being formed utilizing one of a low-transmission phase-shift mask and a non-phase-shifting mask, and at least one critical feature, said at least one critical feature being formed utilizing a high-transmission phase-shift mask,
 - subjecting said photolithography mask to a single exposure utilizing said lithographic exposure apparatus, said single exposure operative for printing both said critical feature and said non-critical feature on said substrate.
- 25 30 21. A method according to claim 20, wherein said photolithography mask is a mask according to claim 2.

22. A method according to claim 20, wherein said photolithography mask is a mask according to claim 3.
23. A method according to claim 20, wherein said photolithography mask is a mask according to claim 5.
- 5 24. A method according to claim 20, wherein said photolithography mask is a mask according to claim 7.
25. A method for transferring a lithographic pattern from a photolithography mask onto a substrate by use of a lithographic exposure apparatus, said method comprising the steps of:
 - 10 forming a first photolithography mask, said first photolithography mask comprising at least one non-critical feature, said at least one non-critical feature being formed utilizing one of a low-transmission phase-shift mask and a non-phase-shifting mask;
 - forming a second photolithography mask, said second photolithography mask comprising at least one critical feature, said at least one critical feature being formed utilizing a high-transmission phase-shift mask,
 - 15 subjecting said first photolithography mask to an exposure utilizing said lithographic exposure apparatus, and
 - subjecting said second photolithography mask to an exposure utilizing said lithographic exposure apparatus.
- 20 26. A method according to claim 25, wherein said low-transmission phase-shift mask comprises a 5-8% transmission attenuated phase-shift mask.
27. A method according to claim 25, wherein said low-transmission phase-shift mask comprises a non-phase-shifting chrome mask.
28. A method according to claim 25, wherein said high-transmission phase-shift mask 25 comprises at least a 10% transmission attenuated phase-shift mask.
29. A method according to claim 26, wherein said high-transmission phase-shift mask comprises at least a 10% transmission attenuated phase-shift mask.
- 30 30. A method according to claim 27, wherein said high-transmission phase-shift mask comprises at least a 10% transmission attenuated phase-shift mask.
31. A method according to claim 25, wherein said high-transmission phase-shift mask 30 comprises at least a 10% transmission chromeless phase-shift mask.

32. A method according to claim 26, wherein said high-transmission phase-shift mask comprises at least a 10% transmission chromeless phase-shift mask.
33. A method according to claim 27, wherein said high-transmission phase-shift mask comprises at least a 10% transmission chromeless phase-shift mask.
- 5 34. A device manufacturing method comprising the steps of:
 - (a) providing a substrate that is at least partially covered by a layer of radiation-sensitive material;
 - (b) providing a projection beam of radiation using a radiation system;
 - (c) using a pattern on a mask to endow the projection beam with a pattern in its cross-section;
 - 10 (d) projecting the patterned beam of radiation onto a target portion of the layer of radiation-sensitive material,wherein, in step (c), use is made of a mask comprising:
 - at least one non-critical feature, formed utilizing one of a low-transmission phase-shift mask and a non-phase-shifting mask, and
- 15 at least one critical feature, formed utilizing a high-transmission phase-shift mask.
35. A device manufactured using a method according to claim 34.